

CLAIMS

What is claimed is:

1. An expression vector comprising the nucleic acid sequence CEA(6D)-1,2 as illustrated in SEQ ID NO.: 24 and Figure 9 or a fragment thereof.
- 5 2. The expression vector of claim 1 wherein the vector is a plasmid or a viral vector.
3. The expression vector of claim 2 wherein the viral vector is selected from the group consisting of poxvirus, adenovirus, retrovirus, herpesvirus, and adeno-associated virus.
4. The expression vector of claim 3 wherein the viral vector is a poxvirus selected from the group consisting of vaccinia, NYVAC, avipox, canarypox, ALVAC, ALVAC(2),
10 fowlpox, and TROVAC.
5. The expression vector of claim 4 wherein the viral vector is a poxvirus selected from the group consisting of NYVAC, ALVAC, and ALVAC(2).
6. The expression vector of claim 1 further comprising at least one additional tumor-associated antigen.
- 15 7. The expression vector of claim 6 wherein the vector is a plasmid or a viral vector.
8. The expression vector of claim 7 wherein the viral vector is selected from the group consisting of poxvirus, adenovirus, retrovirus, herpesvirus, and adeno-associated virus.
9. The expression vector of claim 8 wherein the viral vector is a poxvirus selected from the group consisting of vaccinia, MVA, NYVAC, avipox, canarypox, ALVAC, ALVAC(2),
20 fowlpox, and TROVAC.
10. The expression vector of claim 9 wherein the viral vector is a poxvirus selected from the group consisting of NYVAC, ALVAC, and ALVAC(2).
11. The expression vector of claim 1 further comprising at least one nucleic sequence encoding an angiogenesis-associated antigen.
- 25 12. The expression vector of claim 11 wherein the vector is a plasmid or a viral vector.
13. The expression vector of claim 12 wherein the viral vector is selected from the group consisting of poxvirus, adenovirus, retrovirus, herpesvirus, and adeno-associated virus.
14. The expression vector of claim 13 wherein the viral vector is a poxvirus selected from the group consisting of vaccinia, MVA, NYVAC, avipox, canarypox, ALVAC, ALVAC(2),
30 fowlpox, and TROVAC.
15. The expression vector of claim 14 wherein the viral vector is a poxvirus selected from the group consisting of NYVAC, ALVAC, and ALVAC(2).

16. The expression vector of claim 6 further comprising at least one nucleic sequence encoding an angiogenesis-associated antigen.
17. The expression vector of claim 16 wherein the vector is a plasmid or a viral vector.
18. The expression vector of claim 17 wherein the viral vector is selected from the group consisting of poxvirus, adenovirus, retrovirus, herpesvirus, and adeno-associated virus.
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19. The expression vector of claim 17 wherein the viral vector is a poxvirus selected from the group consisting of vaccinia, MVA, NYVAC, avipox, canarypox, ALVAC, ALVAC(2), fowlpox, and TROVAC.
20. The poxvirus of claim 18 wherein the viral vector is a poxvirus selected from the group
10 consisting of NYVAC, ALVAC, and ALVAC(2).
21. The expression vector of claim 1, 6, 11 or 16 further comprising at least one nucleic acid sequence encoding a co-stimulatory component.
22. The expression vector of claim 22 wherein the vector is a plasmid or a viral vector.
23. The expression vector of claim 23 wherein the viral vector is selected from the group
15 consisting of poxvirus, adenovirus, retrovirus, herpesvirus, and adeno-associated virus.
24. The expression vector of claim 24 wherein the viral vector is a poxvirus selected from the group consisting of vaccinia, MVA, NYVAC, avipox, canarypox, ALVAC, ALVAC(2), fowlpox, and TROVAC.
25. The poxvirus of claim 18 wherein the viral vector is a poxvirus selected from the group
20 consisting of NYVAC, ALVAC, and ALVAC(2).
26. A composition comprising an expression vector in a pharmaceutically acceptable carrier, said vector comprising the nucleic acid sequence CEA(6D)-1,2 as illustrated in SEQ ID NO.: 24 and Figure 9 or a fragment thereof.
27. The expression vector of claim 26 wherein the vector is a plasmid or a viral vector.
28. The expression vector of claim 27 wherein the viral vector is selected from the group
25 consisting of poxvirus, adenovirus, retrovirus, herpesvirus, and adeno-associated virus.
29. The expression vector of claim 28 wherein the viral vector is a poxvirus selected from the group consisting of vaccinia, MVA, NYVAC, avipox, canarypox, ALVAC, ALVAC(2), fowlpox, and TROVAC.
30. The poxvirus of claim 29 wherein the viral vector is a poxvirus selected from the group
30 consisting of NYVAC, ALVAC, and ALVAC(2).

31. A method for preventing or treating cancer comprising administering to a host an expression vector comprising the nucleic acid sequence CEA(6D)-1,2 as illustrated in SEQ ID NO.: 24 and Figure 9 or a fragment thereof.
32. The expression vector of claim 31 wherein the vector is a plasmid or a viral vector.
- 5 33. The expression vector of claim 32 wherein the viral vector is selected from the group consisting of poxvirus, adenovirus, retrovirus, herpesvirus, and adeno-associated virus.
34. The expression vector of claim 33 wherein the viral vector is a poxvirus selected from the group consisting of vaccinia, MVA, NYVAC, avipox, canarypox, ALVAC, ALVAC(2), fowlpox, and TROVAC.
- 10 35. The poxvirus of claim 34 wherein the viral vector is a poxvirus selected from the group consisting of NYVAC, ALVAC, and ALVAC(2).
36. An isolated DNA molecule comprising the CEA(6D)-1,2 sequence illustrated in SEQ ID NO.: 24 and Figure 9.
- 15 37. An isolated DNA molecule comprising a fragment of the CEA(6D)-1,2 sequence illustrated in SEQ ID NO.: 24 and Figure 9.